

# Need for Natural Gas Storage in California and Potential Barriers to Development

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Natural Gas Storage Forum  
November 15, 2007  
Sacramento, California



# Need for Storage in California

- Agency studies
  - CPUC Infrastructure Adequacy Decision
- Market indicators
  - Utilization of current capacity
  - Open season prices
  - Revenues from existing capacity
  - Proposals for additional non-core capacity

# CPUC Infrastructure Adequacy Decision

Concluded that capacity was adequate to meet demand

- Reserve margins based on daily withdrawal capacity from backbone system and from *all* California storage facilities
- Peak demand based on utility assessment of abnormal peak day demand and event of supply loss

	SoCalGas	PG&E
<b>Backbone Pipeline Capacity</b>	3,875	3,286
<b>Firm Storage Withdrawal Capacity</b>	3,175	2,223
<b>Theoretical Peak Capacity</b>	7,050	5,509
<b>Peak-Day Demand 2006/7</b>	5,578 (3,414 Core 1-in-35-year) (2,164 Noncore)	4,755 (3,255 Core 1-in-90-year) (1,500 Noncore)
<b>Peak-Day Reserve Margin</b>	26%	16%

Source: Testimony of Steve Watson, SoCalGas in R.04-01-025  
Figures in MMcf/d

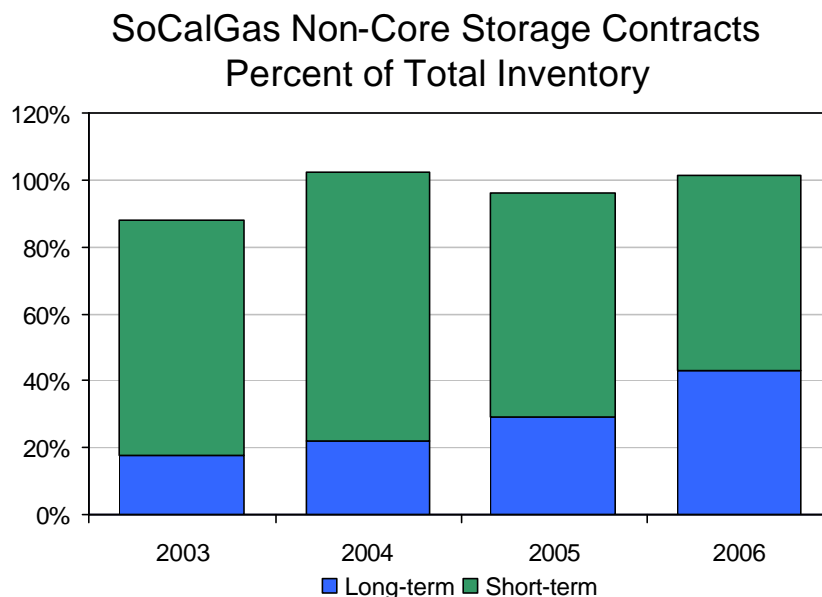
# CPUC Infrastructure Adequacy Decision

## A few caveats...

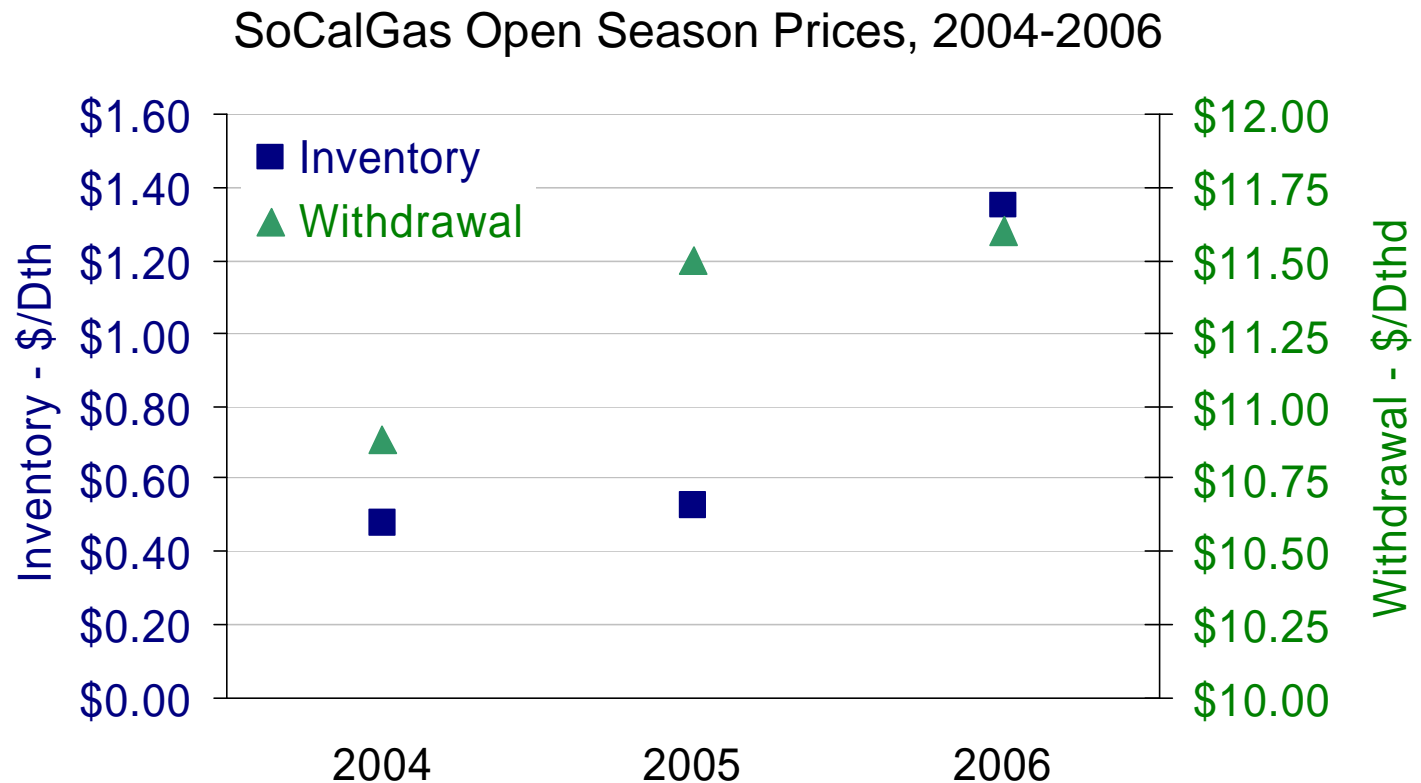
- Non-core capacity (including for electric generation) could be diverted to meet core demand in these situations
  - Without alternate fuel capabilities for electric generation, should planning criteria address this need?
- Reserve margins are somewhat overestimated
  - Both systems have constraints that prevent them from simultaneously using all firm withdrawal and all backbone capacity
- Does not address economic need for storage
  - Additional storage facilities could improve market efficiency by increasing competition and offering additional service options

# Market Indicators – Heavy Utilization of Current Capacity

- PG&E contracted for an additional 1 Bcf of capacity to serve core during peak periods to meet 1-in-10 year peak day
- Lodi has reported that its facilities are being fully utilized
- SoCalGas has sold at least 90% of its noncore storage inventory for each of the last four years, completely selling out in two of these years
- Percentage of long-term contracts is increasing



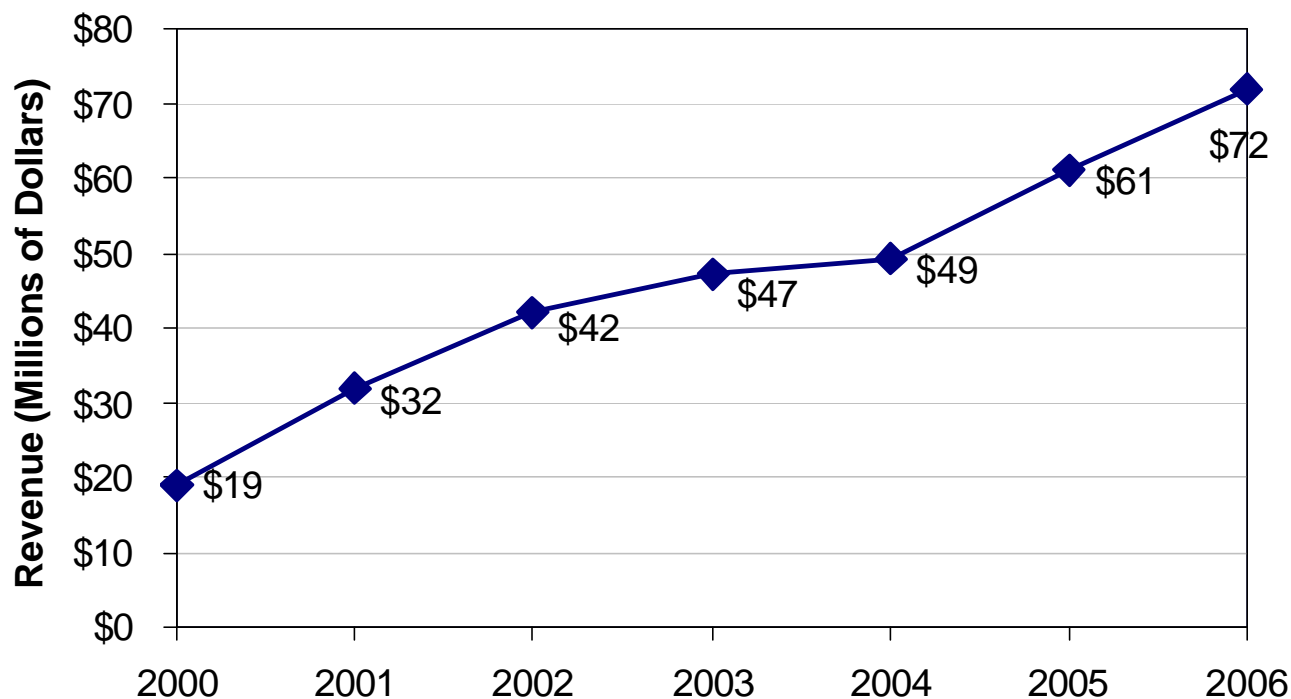
# Market Indicators – Open Season Prices



Source: Rebuttal Testimony of Steve Watson, SoCalGas in A.06-08-026

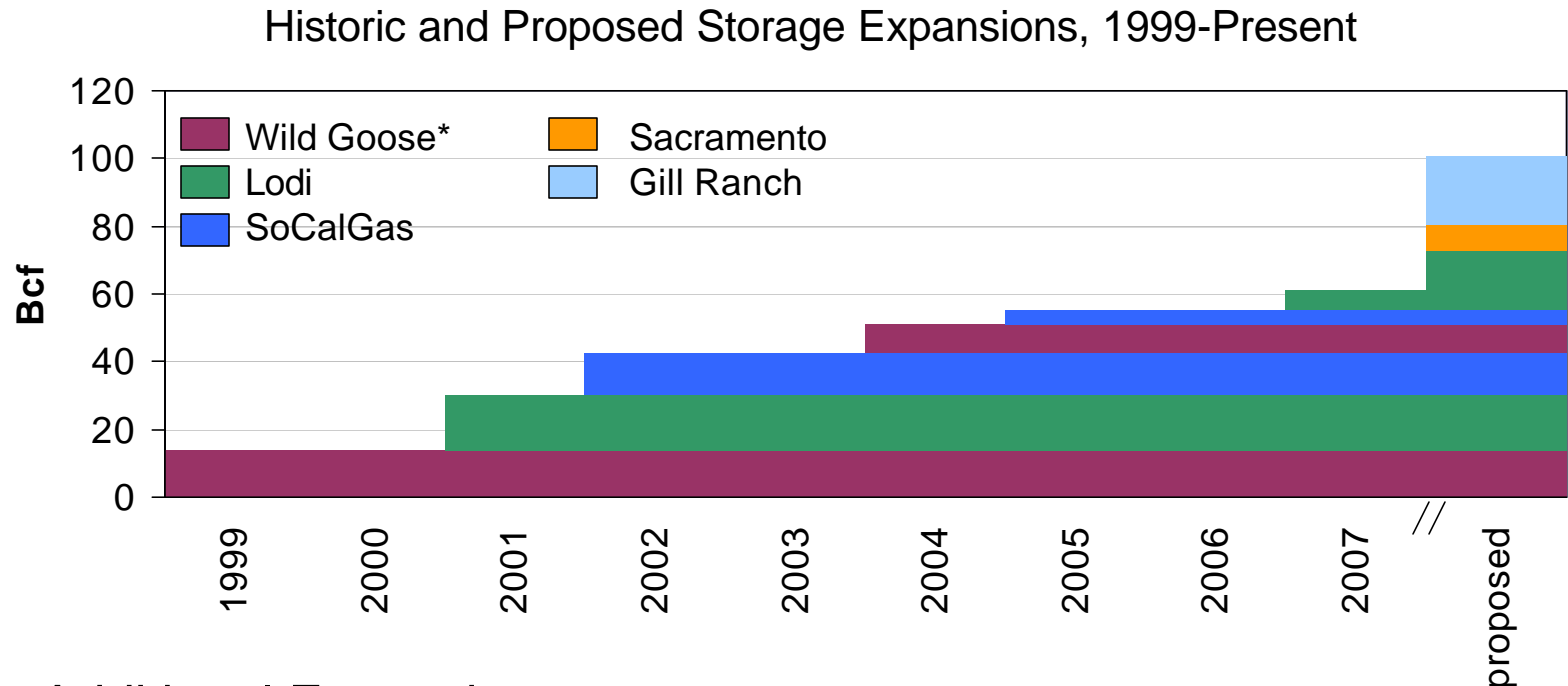
# Market Indicators – Revenues from Existing Capacity

SoCalGas Non-Core Storage Revenues



Source: Testimony of Christine Yap, SCGC in A.06-08-026

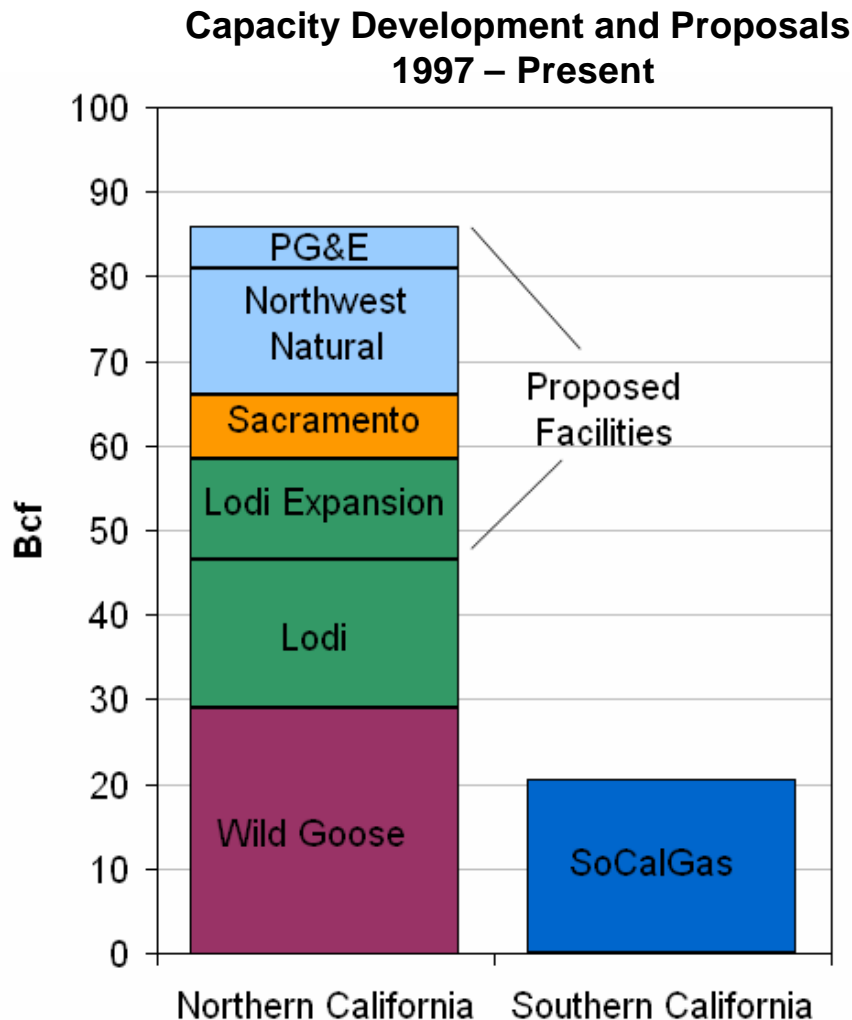
# Market Indicators – Proposals for Additional Non-Core Capacity



## Additional Expansions

- PG&E is expanding McDonald Island withdrawal capability by 100 MMcf/day
- SoCalGas has proposed reallocating 13 Bcf core storage capacity to non-core

# California Storage Development



Market indicates need for more storage.

Are there barriers to development of natural gas storage in Southern California?

# Potential Barriers to Development

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- Regulatory Barriers
- Market Barriers
- Physical Barriers
- Incumbent Advantages

# Regulatory Barriers

- CPCN and CEQA
  - Not always required for expansion of existing facilities
  - Utilities may have more resources to respond to regulatory requirements (e.g., legal staff, CPUC experience, etc.)
- Eminent Domain
  - Utilities allowed to exercise eminent domain if project contributes to the core
    - Can also partially contribute to non-core
  - Purely competitive projects (utilities and independents) must apply for finding of public interest from CPUC

# Ratemaking Treatment of Utilities

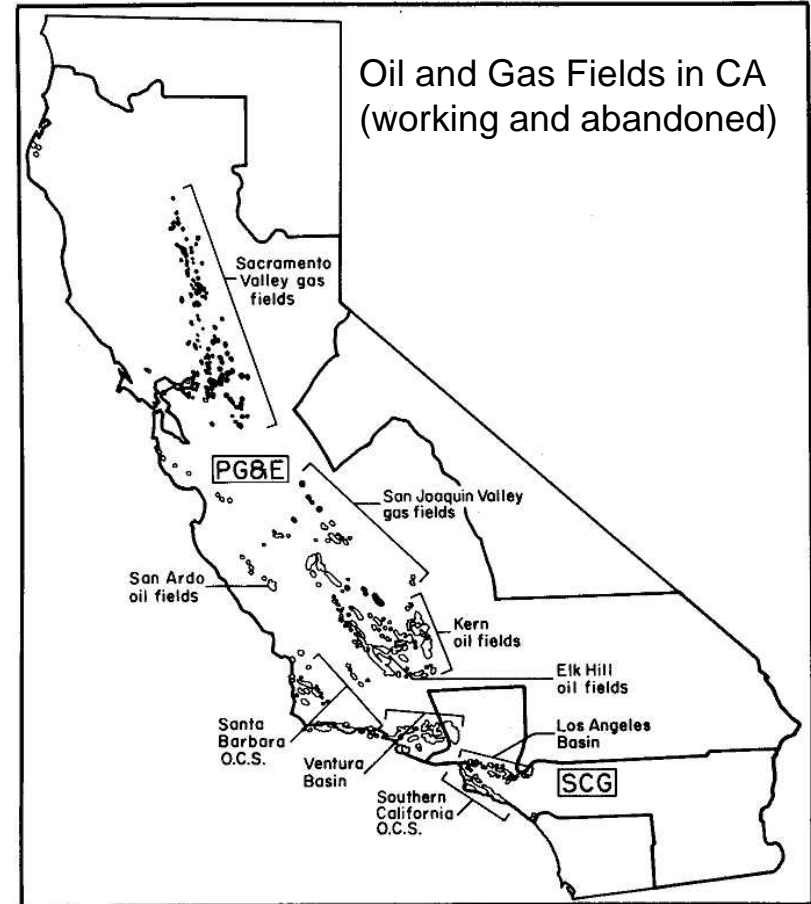
- Competition with utility rates
  - If utility maximum rates are low, entry can be difficult
- Utility revenue requirement
  - Low revenue requirement offers potential to undercut competitor
  - PG&E revenue requirement: \$1.55/Mcf
  - SoCalGas revenue requirement: ~\$0.45/Mcf (\$21 million/46.8 Bcf)
    - Below embedded costs of ~\$0.75/Mcf
    - Balanced by allocating stranded costs to ratepayers through the Noncore Storage Balancing Account (NSBA)

# Market Barriers

- High sunk costs and minimum viable scale
  - Large capital and regulatory costs make large projects more economical
  - Too large of a project can depress market prices
  - Large projects might raise market power concerns
- Access to essential facilities
  - Land access, competing uses
  - Natural gas distribution systems owned by incumbent utilities
- Competition with substitutes
  - Competition with transportation and financial hedges
  - Storage will be developed only if cost-effective compared to these alternatives

# Physical Barriers

- Abundance of abandoned oil and gas fields in Northern and Southern CA
- Some claim Southern California fields not physically or economically suited for development
- Others blame competing land-uses



Source: Gilbert, 1991

# Incumbent Advantages

- Cost Advantage
  - Entrants less likely to achieve economies of scale and scope
  - Utility fields were developed when cushion gas was cheaper
- Expansion Capacity
  - Less expensive to expand existing facility than to build new capacity
  - SoCalGas funded Aliso and La Goleta expansion through sale of cushion gas
- Contracting Advantage
  - Incumbents have secured some long-term contracts
  - Incumbents have long-standing relationships with customers
  - Long-term contracts may be necessary for new facility to mitigate risks of entry

# Barriers to Storage Development

✓ Of particular importance for Southern California

<b>Regulatory Barriers</b>	Regulatory Requirements
	Eminent Domain
	Ratemaking Treatment of Incumbent Utilities
<b>Market Barriers</b>	High Sunk Costs and Minimum Viable Scale
	Access to Essential Facilities
<b>Physical Barriers</b>	✓ Geology and Land Use Issues
<b>Incumbent Advantages</b>	✓ Incumbent Cost Advantage
	✓ Incumbent Expansion Capacity
	✓ Incumbent Contracting Advantage